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1 [Jump map-based interactive texture synthesis](#)

Steve Zelinka, Michael Garland

October 2004

Transactions on Graphics (TOG) , Volume 23 Issue 4

Publisher: ACM [Request Permissions](#)Full text available: [PDF](#) (529.89 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 11, Downloads (12 Months): 114, Downloads (Overall): 1225, Citation Count: 12

We present techniques for accelerated texture synthesis from example images. The key idea of our approach is to divide the task into two phases: analysis, and synthesis. During the analysis phase, which is performed once per sample texture, we generate ...

Keywords: Interactive texture synthesis, jump maps, texturing surfaces2 [Exploiting perception in high-fidelity virtual environments](#)[Additional presentations from the 24th course are available on the citation page](#)

Mashhuda Ghencross, Alan G. Chalmers, Ming C. Lin, Miguel A. Otaduy, Diego Gutierrez

July 2006 SIGGRAPH '06: SIGGRAPH 2006 Courses

Publisher: ACM [Request Permissions](#)Full text available: [MOV](#) (68:6 MIN), [PDF](#) (5.07 MB)Additional Information: [full citation](#), [appendices and supplements](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 168, Downloads (12 Months): 1277, Downloads (Overall): 5181, Citation Count: 1

The objective of this course is to provide an introduction to the issues that must be considered when building high-fidelity 3D engaging shared virtual environments. The principles of human perception guide important development of algorithms and techniques ...

Keywords: collaborative environments, haptics, high-fidelity rendering, human-computer interaction, multi-user, networked applications, perception, virtual reality3 [GPGPU: general purpose computation on graphics hardware](#)

David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn

August 2004 SIGGRAPH '04: SIGGRAPH 2004 Course Notes


Publisher: ACM [Request Permissions](#)Full text available: [PDF](#) (63.03 MB)Additional Information: [full citation](#), [abstract](#), [cited by](#)

Bibliometrics: Downloads (6 Weeks): 166, Downloads (12 Months): 1463, Downloads (Overall): 6921, Citation Count: 15

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex ...


4 Crowd and group animation
 [Daniel Thalmann, Christophe Hery, Seth Lippman, Hiromi Ono, Stephen Regeles, Douglas Sutton](#)

 August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**
Publisher: ACM  [Request Permissions](#)



 Full text available:  [Pdf](#) (20.19 MB)

 Additional Information: [full citation](#), [abstract](#)
Bibliometrics: Downloads (6 Weeks): 62, Downloads (12 Months): 724, Downloads (Overall): 3325, Citation Count: 1

A continuous challenge for special effects in movies is the production of realistic virtual crowds, in terms of rendering and behavior. This course will present state-of-the-art techniques and methods. The course will explain in details the different ...

5 The rise and fall of High Performance Fortran: an historical object lesson
 [Ken Kennedy, Charles Koebel, Hans Zima](#)


 June 2007 **HOPL III: Proceedings of the third ACM SIGPLAN conference on History of programming languages**
Publisher: ACM  [Request Permissions](#)

 Full text available:  [Mov](#) (64:25 MIN),  [Pdf](#) (251.39 KB)


 Additional Information: [full citation](#), [references and supplements](#), [abstract](#), [references cited by](#), [index terms](#)
Bibliometrics: Downloads (6 Weeks): 39, Downloads (12 Months): 308, Downloads (Overall): 1199, Citation Count: 7

High Performance Fortran (HPF) is a high-level data-parallel programming system based on Fortran. The effort to standardize HPF began in 1991, at the Supercomputing Conference in Albuquerque, where a group of industry leaders asked Ken Kennedy to lead ...

Keywords: High Performance Fortran (HPF), compilers, parallel computing


6 The elements of nature: interactive and realistic techniques
 [Oliver Deussen, David S. Ebert, Ron Fedkiw, E. Kenton Musgrave, Przemyslaw Prusinkiewicz, Doug Roble, Jos. Stam, Jerry Tessendorf](#)

 August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**
Publisher: ACM  [Request Permissions](#)


 Full text available:  [Pdf](#) (17.65 MB)

 Additional Information: [full citation](#), [abstract](#), [chapters by](#)
Bibliometrics: Downloads (6 Weeks): 204, Downloads (12 Months): 1429, Downloads (Overall): 7187, Citation Count: 2

This updated course on simulating natural phenomena will cover the latest research and production techniques for simulating most of the elements of nature. The presenters will provide movie production, interactive simulation, and research perspectives ...

7 Level set and PDE methods for computer graphics
 [David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker](#)

 August 2004 **SIGGRAPH '04: SIGGRAPH 2004 Course Notes**
Publisher: ACM  [Request Permissions](#)

 Full text available:  [Pdf](#) (17.07 MB)

 Additional Information: [full citation](#), [abstract](#), [chapters by](#)
Bibliometrics: Downloads (6 Weeks): 96, Downloads (12 Months): 896, Downloads (Overall): 5607, Citation Count: 3

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the ...

8 [Symmetric tiling of closed surfaces; visualization of regular maps](#)[Janke J. van Wijk](#)

July 2009

SIGGRAPH '09: SIGGRAPH 2009 papers

Publisher: ACM

[Request Permissions](#)Full text available: [Mov](#) (28:15 MIN), [Pdf](#) (11:12 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 61, Downloads (12 Months): 334, Downloads (Overall): 334, Citation Count: 0

A regular map is a tiling of a closed surface into faces, bounded by edges that join pairs of vertices, such that these elements exhibit a maximal symmetry. For genus 0 and 1 (spheres and tori) it is well known how to generate and present regular maps, ...

Key words: mathematical visualization, meshes, regular maps, surface topology, tessellation, tiling

Also published in:

July 2009 [Transactions on Graphics \(TOG\)](#) Volume 28 Issue 39 [m-LOMA - a mobile 3D city map](#)[Antti Nurminen](#)

April

Web3D '06: Proceedings of the eleventh international conference on 3D web technology

2006

Publisher: ACM

[Request Permissions](#)Full text available: [Mov](#) (458.46 KB), [Pdf](#) (458.46 KB)Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 21, Downloads (12 Months): 236, Downloads (Overall): 1267, Citation Count: 12

m-LOMA, mobile LOcation-Aware Messaging Application, is designed to be a mobile portal to location-based information in cities. The user can perform textual searches to location-based content, navigate using 2D maps assisted by a GPS, and leave ...

Keywords: 3D graphics, 3D maps, GIS, VRML, mobile computing, mobile guides, visibility

10 [Interactive example-based urban layout synthesis](#)[Daniel G. Aliaga](#), [Carlos A. Vanevas](#), [Bedrich Benes](#)

December 2008

SIGGRAPH Asia '08: SIGGRAPH Asia 2008 papers

Publisher: ACM

[Request Permissions](#)Full text available: [Mov](#) (27:13 MIN), [Pdf](#) (27:25 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 40, Downloads (12 Months): 347, Downloads (Overall): 500, Citation Count: 2

We present an interactive system for synthesizing urban layouts by example. Our method simultaneously performs both a structure-based synthesis and an image-based synthesis to generate a complete urban layout with a plausible street network and with ...

Key words: content-aware image editing, example-based, procedural modeling, texture and image synthesis

Also published in:

December 2008 [Transactions on Graphics \(TOG\)](#) Volume 27 Issue 511 [A final reconstruction approach for a unified global illumination algorithm](#)[Xavier Granier](#), [George Drettakis](#)

April 2004

[Transactions on Graphics \(TOG\)](#), Volume 23 Issue 2


Publisher: ACM

[Request Permissions](#)Full text available: [Mov](#) (4:41 MB), [Pdf](#) (4:41 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 22, Downloads (12 Months): 77, Downloads (Overall): 1194, Citation Count: 5


In the past twenty years, many algorithms have been proposed to compute global illumination in synthetic scenes. Typically, such approaches can deal with specific lighting configurations, but often have difficulties with others. In this article, we present ...

Key words: Global illumination, density estimation, final gather, hierarchical radiosity with clustering, particle tracing


12 [Mobile, hardware-accelerated urban 3D maps in 3G networks](#) [Antti Nurminen](#)April **Web3D '07: Proceedings of the twelfth international conference on 3D web technology** 2007**Publisher:** ACM  [Request Permissions](#)Full text available:  [Pdf](#) (327.90 KB) **Additional Information:** [full citation](#), [abstract](#), [references](#), [index terms](#)**Bibliometrics:** Downloads (6 Weeks): 15, Downloads (12 Months): 164, Downloads (Overall): 788, Citation Count: 0

3D maps can visualize static and dynamic features of real environments, and act as 3D gateways to location-based information. Insufficient network speed has been a major bottleneck for dynamic download of 3D content for mobile devices. 3G network technologies ...

Keywords: 3D maps, VRML, mobile computing, wireless networks


13 [Real-time individualized virtual humans](#) [Nadia Magnenat-Thalmann, Daniel Thalmann](#)December 2008 **SIGGRAPH Asia '08: SIGGRAPH ASIA 2008 courses****Publisher:** ACM  [Request Permissions](#)Full text available:  [Pdf](#) (11.13 MB) **Additional Information:** [full citation](#), [abstract](#), [references](#), [index terms](#)**Bibliometrics:** Downloads (6 Weeks): 31, Downloads (12 Months): 283, Downloads (Overall): 329, Citation Count: 0

This tutorial will present the latest techniques to model fast individualized animatable virtual humans for Real-Time applications. As a human is composed of a head and a body, we will analyze how these two parts can be modeled and globally animated ...

14 [A directory service for perspective access networks](#)[Geoffrey Goodell, Mema Roussopoulos, Scott Bradner](#)April 2009 **IEEE/ACM Transactions on Networking (TON)**, Volume 17 Issue 2**Publisher:** IEEE Press  [Request Permissions](#)Full text available:  [Pdf](#) (1.07 MB) **Additional Information:** [full citation](#), [abstract](#), [references](#), [index terms](#)**Bibliometrics:** Downloads (6 Weeks): 17, Downloads (12 Months): 120, Downloads (Overall): 120, Citation Count: 0

Network fragmentation occurs when the accessibility of a network-based resource to an observer is a function of how the observer is connected to the network. In the context of the Internet, network fragmentation is well known and occurs in many situations, ...

Keywords: network neutrality, overlay networks, peer-to-peer

15 [Edge subdivision schemes and the construction of smooth vector fields](#) [Ke Wang, Weiwai, Yiyong Tong, Mathieu Desbrun, Peter Schröder](#)July 2006 **SIGGRAPH '06: SIGGRAPH 2006 Papers****Publisher:** ACM  [Request Permissions](#)Full text available:  [Mov](#) (20:22 MIN),  [Pdf](#) (642.83 KB) **Additional Information:** [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)**Bibliometrics:** Downloads (6 Weeks): 13, Downloads (12 Months): 102, Downloads (Overall): 682, Citation Count: 7

Vertex- and face-based subdivision schemes are now routinely used in geometric modeling and computational science, and their primal/dual relationships are well studied. In this paper, we interpret these schemes as defining bases for *discrete differential* ...

Keywords: *discrete differential geometry, discrete exterior calculus, smooth surface modeling, subdivision, vector fields*


Also published in:

July 2006 **Transactions on Graphics (TOG)** Volume 25 Issue 3

16 [Image Based Flow Visualization for Curved Surfaces](#)[Jarke J. van Wijk](#)

October 2003 VIS '03: Proceedings of the 14th IEEE Visualization 2003 (VIS '03)

Publisher: IEEE Computer Society

Full text available:  [Pdf](#) (835.48


KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 40, Downloads (Overall): 235, Citation Count: 14



A new method for the synthesis of dense, vector-field aligned textures on curved surfaces is presented, called IBFVS. The method is based on Image Based Flow Visualization (IBFV). In IBFV two-dimensional animated textures are produced by defining each ...

Keywords: Flow visualization, texture mapping, line integral convolution, surface rendering

17 [Computational geometry algorithms library](#) [Pierre Alliez](#), [Andreas Fabri](#), [Éli Fogot](#)

August 2008

SI GGRAPH '08: SIGGRAPH 2008 classes


Publisher: ACM Full text available:  [Mov](#) (192:26 MIN),  [Pdf](#) (32.75

MB)

Additional Information: [full citation](#), [abstract](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 26, Downloads (12 Months): 196, Downloads (Overall): 527, Citation Count: 0

The CGAL Open Source Project provides easy access to efficient and reliable geometric algorithms in the form of a C++ library, offering geometric data structures and algorithms, which are efficient, robust, easy to use, and easy to integrate in ...

18 [Multi-fragment effects on the GPU using the k-buffer](#) [Louis Bavoil](#), [Steven P. Callahan](#), [Aaron Lefohn](#), [João L. D. Comba](#), [Cláudio T. Silva](#)

April 2007 I 3D '07: Proceedings of the 2007 symposium on Interactive 3D graphics and games 2007

Publisher: ACM Full text available:  [Pdf](#) (2.66


MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 12, Downloads (12 Months): 102, Downloads (Overall): 457, Citation Count: 6


Many interactive rendering algorithms require operations on multiple fragments (i.e., ray intersections) at the same pixel location: however, current Graphics Processing Units (GPUs) capture only a single fragment per pixel. Example effects include transparency, ...

Keywords: CSG, blending, fragment processing, graphics hardware, transparency, visibility ordering, volume rendering

19 [Data-dependent fairing of subdivision surfaces](#) [Ilja Friedel](#), [Patrick Mullen](#), [Peter Schröder](#)

June 2003 SM '03: Proceedings of the eighth ACM symposium on Solid modeling and applications

Publisher: ACM

Full text available:  [Pdf](#) (945.44

KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 15, Downloads (Overall): 280, Citation Count: 1

In this paper we present a new algorithm for solving the data dependent fairing problem for subdivision surfaces, using Catmull-Clark surfaces as an example. Earlier approaches to subdivision surface fairing encountered problems with singularities in ...

Keywords: CAD, Catmull-Clark, bicubic b-splines, fairing, geometric modeling, nonlinear minimization, subdivision surfaces, thinplate energy

20 [Lofting curve networks using subdivision surfaces](#)



[S. Schaefer](#), [J. Warren](#), [D. Zorin](#)

July SGP '04: Proceedings of the 2004 Eurographics/ACM SIGGRAPH symposium on Geometry processing 2004

Publisher: ACM

Full text available: Pdf (448.52 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 1, Downloads (12 Months): 28, Downloads (Overall): 270, Citation Count: 7

Lofting is a traditional technique for creating a curved shape by first specifying a network of curves that approximates the desired shape and then interpolating these curves with a smooth surface. This paper addresses the problem of lofting from the ...

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